UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,296	11/02/2001	Subramanian Vasudevan	3-2	2491

7590 11/07/2007

Docket Administration (Room 3J-219)
Lucent Technologies Inc.
101 Crawfords Corner Road
Holmdel, NJ 07733-3030

EXAMINER	
WONG, WARNER	
ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
11/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/001,296	VASUDEVAN ET AL.	
	Examiner	Art Unit	
	Warner Wong	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gitlin (6,018,528) in view of Hortensius (US 6,252,854)

Regarding claims 1,10 and 19, Gitlin describes an air interface transmission (inherent of transmitting, receiving and allocating) method for CDMA/TDMA/FDMA users (mobile devices) comprising:

transmitting/receiving information over a shared wireless channel by varying a time span (total time slots to transfer entire information payload) and at least one of a bandwidth (frequency bands or code space) and a duty cycle (# of time slots for a user) (fig. 6 and 7, where # of frequency bands, code space and/or time slots are varied), wherein the time span is based on the channel quality (col. 8, lines 42-45, where the scheduler varies its scheduling (time span) according to the Bit Error Rate (BER) (channel quality)).

Gitlin fails to describe using the rate of change of its channel quality of BER for his adjustments in wireless communication.

Hortensius describes using the speed (rate) of change of its link (channel) quality for adjustments in wireless communication (title & abstract).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to use of "rate of change in channel quality" as in Hortensius' wireless communication method in place of using the "change quality" in preventing interference from exceeding the acceptable threshold in the wireless transmission method of Gitlin.

The motivation for combining the teaching is that it allows a station to dynamically calculate the proper & optimum rate with to receive & transmit data to another wireless station (Hortensius, col. 3, lines 29-39).

Regarding claims 2 and 11, Gitlin describes at least one of a bandwidth and a duty cycle are varied as a function of a channel quality (BER) of a wireless receiver (col. 8, lines 42-45, "The scheduling process accounts for granting the various users codes so that the BER caused by the total level of interference from all the transmissions remains below the acceptable threshold.")

Regarding claims 3 and 12, Gitlin describes the channel quality comprises the bit error rate (BER) of a wireless link between the wireless receiver and a wireless transmitter (col. 8, lines 42-45, "The scheduling process accounts for granting the various users codes so that the BER caused by the total level of interference from all the transmissions remains below the acceptable threshold.")

Regarding claims 4 and 13, Gitlin describes the channel quality comprises the interference from information transmitted to at least one other wireless receiver (col. 8, lines 42-45, "The scheduling process accounts for granting the various users codes so

that the BER caused by the total level of interference from all the transmissions remains below the acceptable threshold.")

Regarding claims 5 and 14, Gitlin describes the step of transmitting/receiving a signal corresponding with a transmission format having a time span and at least one of a bandwidth (frequency bands or code space) and a duty cycle (time slots) to be employed for the information to be transmitted (fig. 6 and 7, where the transmission format of each user comprises certain frequency bands, code space and/or time slots).

Regarding claims 6 and 15, Gitlin describes the signal comprising a bit sequence corresponding with at least one of the varied time span (time slots) and varied bandwidth (frequency bands or code space) (col. 2, lines 22-25, "The individual time slots 24 can transmit a given number of bits for voice (n bits) or video (m bits) transmissions, using different amounts of bandwidths.")

Regarding claims 7 and 16, Gitlin describes the transmitting/receiving a signal comprises:

determining the transmission format (fig. 6 and 7, where the transmission format of each user comprises certain frequency bands, code space and/or time slots);

recalculating the bandwidth (frequency bands or code space) of the transmission format if the time span (interval of time allocated to download the entire data [payload], depending on rate of variation [i.e. channel quality] as defined on p.13 of specification) is greater than an information payload to be transmitted divided by a data rate (i.e. the anticipated interval of time **not** accounted for any channel quality variation) of the wireless receiver (col. 8, lines 52-54, "Scheduling may thus be used to efficiently pack

each time slot within overall medium 40, while maintaining acceptable bit error rates.", where the scheduler dynamically recalculates the bandwidth based on varying channel quality.)

Regarding claims 8 and 17, Gitlin describes the transmitting/receiving a signal comprises:

determining the transmission format (fig. 7, where the transmission format of each user comprises certain code space and/or time slots);

recalculating the duty cycle (# of time slots for a user per a transmission window as in fig. 6 or 7; each duty cycle is a fraction of time span as per definition on p. 13 of the applicant specification & each duty cycle transmits a portion of the payload.) of the transmission format if the time span (interval of time allocated to download the entire data [payload], depending on rate of variation [i.e. channel quality] as defined on p.13 of specification) is greater than an information payload to be transmitted divided by a data rate (i.e. the anticipated interval of time **not** accounted for any channel quality variation) of the wireless receiver (col. 8, lines 52-54, "Scheduling may thus be used to efficiently pack each time slot within overall medium 40, while maintaining acceptable bit error rates." where the scheduler dynamically recalculates the bandwidth based on varying channel quality.)

Regarding claims 9 and 18, the definitions of time span and duty cycle are interpreted by the examiner as provided in claim 1. The data rate is interpreted by the examiner as the # of time slots multiplied by # of frequency bands/code space of a user per a transmission window, which is subject to change by the scheduler (col. 8, lines 52-

54). Hence, by such definition, Gitlin teaches that the duty cycle will be determined by (a function of) dividing the information payload by the product of the data rate and the time span.

Response to Arguments

2. Applicant's arguments filed October 2, 2007 have been fully considered but they are not persuasive.

From p. 1 to p. 2 paragraph 2, the applicants argued that there is no prima facie case of obviousness in combining the Hortensius with Gitlin. Specifically, the applicants argue that Gitlin's use of different codes and scheduling for users does not correspond to varying the "scheduling (timing span) according to the bit error rate (BER) (channel quality)" because it "does not use channel quality for the scheduling technique". The examiner respectfully disagrees.

The examiner clearly understands from the Gitlin's citation (above) in combination with Gitlin's drawings that time, frequency and/or code scheduling is based on BER, which IS the channel quality.

From p. 2 paragraph 3 to p. 2 paragraph 1, the applicant argues that the Hortensius reference cannot be combined with Gitlin because it describes retransmissions while Gitlin describes scheduling technique. The examiner respectfully disagrees.

The examiner proclaim that both references teach a means to resolve poor channel quality in wireless communications (same field of art). Certainly one of ordinary skill can understand from Hortensius's abstract that the "speed of change in the link

quality" can be used as the alternative measurement of link quality in replacing the "change of BER [link quality]" used in Gitlin (i.e. in scientific terms, using 'the acceleration of link quality measurement' instead of 'the speed of link quality measurement').

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warner Wong whose telephone number is 571-272-8197. The examiner can normally be reached on 6:30AM - 3:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Warner Wong
Examiner
Art Unit 2616

WW

KWANG BIN YAO
SUPERVISORY PATENT EXAMINER